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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
| 09/388,286 | 09/01/99 | BLALOCK | |

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3

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/388,286

Applicant(s)

Blalock

Examiner

Arlen Soderquist

Art Unit

1743



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s): 2 20) ☐ Other:

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 12-13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamagishi (US 5,756,879). In the patent Yamagishi teaches volatile organic compound sensors. A sensor for reversibly detecting target volatile material in the gas phase comprises a dielectric (glass) substrate having a major surface, a pair of electrically conductive electrodes disposed on said major surface of said substrate, and a conductive polymer covering said pair of electrically conductive electrodes, said conductive polymer doped with appropriate dopants, said dopants present in said conductive polymer in measurable excess of said stoichiometrically required to change said conductive polymer from a neutral state to a charged state to provide requisite conductivity, said sensor being capable of detecting the presence of said target volatile material at a concentration of ≤ 500 ppm.

3. Claims 1, 6, 9-10, 12, 15-17 and 19-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hacman (GB 1,151,482) or N.V. PHILIPS (FR 1576658).

In the published application Hacman teaches temperature measurement for forming thin films on substrates by vacuum vapor deposition. The temperature ($100-400^{\circ}$) of glass substrates in the vacuum vapor deposition of metals is controlled by measuring the electrical resistance of a strip of identical deposit-free glass between two electrodes. To avoid polarization, the measuring current is a.c. Both warming and reliable temperature control of the substrate lead to better adherence of the deposited metal.

In the published application N.V. PHILIPS teaches thin-film metal oxide resistors. Metal oxide films having high resistances (1-500 kilohms/square) are fabricated by depositing (e.g. by evaporation in a vacuum) a series of metal films (e.g., Nichrome). Each film in the series is oxidized almost completely before deposition of the following one. Both the deposition and the oxidation of each layer are monitored by measuring the resistance of similar layers deposited onto

a nearby glass substrate which has electrodes and leads already attached. For Nichrome films, the substrate temperature is 350° and deposition of a given layer is halted when the resistance of the control film has decreased to 200 kilohms/square. The air pressure in the bell jar is then increased to 6×10^{-4} torr and oxidation proceeds until the resistance of the control stops increasing. The pressure is then reduced, and subsequent layers are added. An alternative method, yielding films of greater uniformity and higher resistivity, involves evaporating the nichrome $(1-5) \times 10^{-5}$ torr. Oxidation can then occur to some extent while evaporation proceeds, but is completed only by interrupting evaporation periodically to allow oxidation at higher pressures.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2-5, 7-8, 11, 13-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hacman or N.V. PHILIPS as applied to claims 1, 6, 10, 12 and 17 above, and further in view of Arai (JP 2-293644 or JP 3-48748). Hacman or N.V. PHILIPS do not teach the specifically claimed gas phase materials, a polymer detection surface or the temperature of the heated detection surface.

In the published 2-293644 application Arai teaches a quartz-oscillator sensor for determination of ruthenium oxide (RuO_4). The title sensor, having high sensitivity and an in situ capability, comprises an organic film (e.g., polyethylene and rubber) on an electrode of a quartz

oscillator, where reduction of RuO_4 and subsequent RuO_2 deposition (i.e., causing a weight increase) on the organic film surface is measured as a change in the resonance frequency of the oscillator to determine RuO_4 .

In the published 3-48748 application Arai teaches a ruthenium sensor with an oscillator. The Ru sensor, especially useful in nuclear fuel reprocessing plants, comprises an oscillator equipped with electrodes and organic films on an electrode. The shift in resonance frequency of the oscillator is determined, as RuO_4 is reduced to RuO_2 and deposited, causing a weight increase on the organic film.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the device and methods of Hacman or N.V. PHILIPS to detect the ruthenium or similar gas phase compounds or Arai because of the ability to measure them conductometrically and the ability of the polymer materials of Arai to allow the gas phase material to deposit on a surface.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional art relates to sensing of materials in which conductivity is measured.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The examiner can normally be reached from about 5:30 AM to about 3:00 PM on Mondays and from about 7:30 AM to about 5:00 PM on Tuesday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Another number for official papers is (703) 305-3599. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



June 26, 2001

ARLEN SODERQUIST
PRIMARY EXAMINER